

Patent Claims

1. Safety device for laboratory work, in particular for liquid chromatography systems, with a level measuring arrangement (7), which is connected to a tank (8) and, upon detection of a certain liquid level in the tank (8), generates an alarm signal, **characterized in that** the level measuring arrangement (7) is also connected to at least one laboratory working surface (3, 4) and also produces the alarm signal when it detects leaking liquid on the at least one laboratory working surface (3, 4).
2. Safety device as claimed in Claim 1, **characterized in that** the level measuring arrangement (7) exhibits an interior (13), into which liquid from a certain liquid level in the tank (8) and/or liquid leaking on the at least one laboratory working surface (3, 4) flows, and for which a level limit switch (14), preferably a vibration limit switch, is provided.
3. Safety device as claimed in Claim 2, **characterized in that** the level measuring arrangement (7) projects down into the tank (8) from above and preferably exhibits a transcurrent hole (18) connecting the interior (17) of the tank (8) to the interior (13) of the level measuring arrangement (7) in a side wall (16) of its interior (13).
4. Safety device as claimed in Claim 2 or 3, **characterized in that** the level measuring arrangement (7) has a bowl-like element (19) exhibiting the interior (13), which is preferably screwed via its upper side (20) to the lower end of a longitudinal hole (22) in the main part (21) of the level measuring arrangement (7).
5. Safety device as claimed in Claim 4, **characterized in that** the main part (21) of the level measuring arrangement (7) exhibits a supplementary hole (23) discharging into the longitudinal hole (22), through which the liquid leaking onto the at

least one laboratory working surface (3, 4) flows into the interior (13) of the level measuring arrangement (7).

6. Safety device as claimed in one or other of the foregoing Claims, **characterized in that** the level measuring arrangement (7) is also a drum adapter (24).

7. Safety device as claimed in one or other of the foregoing Claims, **characterized in that** the level measuring arrangement (7) is connected to a monitoring device (31) preferably exhibiting a plurality of safety circuits and executed in the form of a Liquid Control Interface, known as LCI, which preferably communicates with analysis and/or control software, for example chromatography software, forms the central power supply unit for an analysis system, for example a preparative HPLC system, and switches off the analysis system, preferably with a time delay, in the event of an alarm signal from one of the safety circuits.

8. Safety device as claimed in Claim 7, **characterized in that** liquid-carrying components, preferably pumps, are capable of being supplied with electrical energy via the central power supply unit.

9. Safety device as claimed in Claims 7 or 8, **characterized in that** the monitoring device (31) is designed in such a way that the maximum and/or the minimum liquid level in a tank (8) is detectable.

10. Safety device as claimed in Claim 9, **characterized in that** further measurement sensors (41), preferably in the form of level meters for triggering an alarm in the event of a maximum and/or minimum liquid level in a tank (8) are connected to the monitoring device (31).

11. Safety device as claimed in one or other of Claims 7 to 10, **characterized in that** the monitoring device (31) exhibits a timer relay (39), which, in the event of an

alarm, generates a signal after a preset time delay and in so doing causes a power relay (40) to open, which then interrupts the power supply to a mains outlet (43) preferably in the form of an outlet socket.

12. Safety device as claimed in one or other of Claims 7 to 11, **characterized in that** the monitoring device (31) contains a second timer relay (38), which at preset time intervals requests a signal in the form of an impulse, for example, from control software and, in the absence of the impulse signal, itself generates a signal and in this way causes a power relay (40) to open, which then interrupts the power supply to a mains outlet (43) preferably in the form of an outlet socket.

13. Safety device as claimed in Claim 12, **characterized in that** the function of the second timer relay (38) is capable of being switched on and off.